

CHAPTER 6

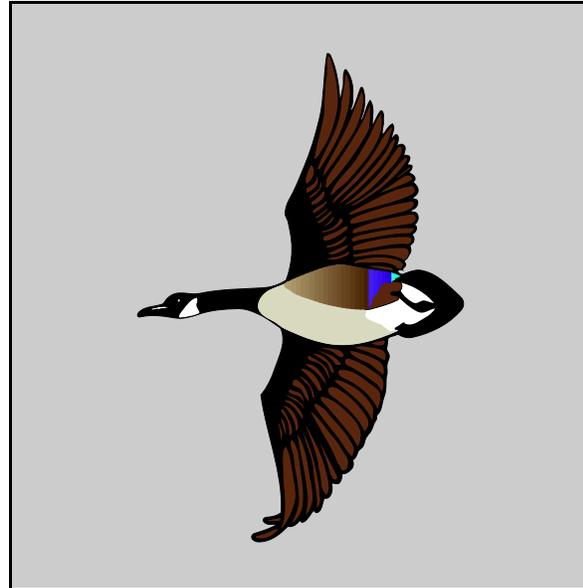
Monitoring and Evaluation Plan

The GJRA will conduct informal evaluations of monitoring data and resource conditions on an annual basis, and will report evaluations to the Ruby Canyon/Black Ridge interdisciplinary core team and the

Ad-Hoc Committee and any other interested agency or public. Interested agencies or public individuals or groups may participate in this evaluation or meeting. Should the evaluation reveal unacceptable conditions, a formal evaluation will be initiated.

Formal evaluations will be conducted every five years to coincide with the resurvey of RCBR visitors or in the event that informal evaluations by the interdisciplinary core team reveal unacceptable conditions. Formal evaluations will be conducted by the full core team and will include the following items:

1. Documentation of management actions that have been implemented.
2. Documentation of the existing condition of any specific indicators and standards.
3. Monitoring data analysis to determine if plan objectives are being met or trend is toward meeting the objectives. If objectives are not being met or the trend is away from meeting the objectives, new management actions will be recommended.



4. New issues will be analyzed to determine if they are within the scope of the existing objectives. Management actions will then be analyzed to determine if they adequately address the issue.
5. Newly developed management actions identified for implementation will become plan revisions or amendments. Plan amendments will be subject to additional environmental review (NEPA) and will be available for public review for 30 days before a decision is made to implement the action(s).

The following outlines the specific monitoring that will be conducted for each resource:

RECREATION

Environmental and social management standards have been established through the Limits of Acceptable Change (LAC) process and public participation. LAC is a process for establishing acceptable and appropriate conditions and will govern the management strategy for RCBR area. LAC is based on the premise that change to the ecological and social conditions of an area will occur as a result of natural and human factors. The goal of management is to keep the character and the rate of change due to human factors within acceptable levels and consistent with the identified physical, social and managerial settings as well as the objectives of the plan.

The primary emphasis of the LAC system is on the conditions desired, rather than on how much use an area can tolerate, i.e., the social carrying capacity. The management challenge is not one of how to prevent any human-induced change, but rather one of deciding what change should occur, how much change will be allowed, what management actions are needed to guide and control it and how the managing agencies and partners will know when the established limits are being or have been reached.

While carrying capacities have not been established for key areas in the RCBR ecosystem, i.e., the river corridor, the mechanics of the LAC system alert the managing agencies to unacceptable change before it is too late to react and more restrictive actions must be put into place. For each value to be monitored, one or more key indicators are selected which allow the managing agencies to track that aspect of the ecosystem or social setting. For each indicator, a standard is set. This is the threshold value which determines the amount of change that will be accepted. The standards serve as "triggers" which cause predetermined management actions to be implemented.

The LAC process is designed to be the foundation for the long-term protection and enhancement of the targeted objectives in the RCBR area. The following tables outline the key indicators, management standards, potential management actions as well as monitoring that will be conducted.

RECREATIONAL Monitoring Indicators, Standards and Actions for North of the River Zone

Value to be Maintained or Enhanced	Key Indicators	Management Standard	Management Actions if Standard(s) are not met (in preferred order of implementation)	Sampling Method/Frequency
<p><u>Physical Setting:</u> Land and Facilities</p>	<p>1. Nearness to/distance from roads</p> <p>2. Amount of Developed Facilities</p>	<p><u>Mary's & Lion's Loop</u> <u>Rabbit Valley Riding Area</u></p> <p>1. Near or on 4 WD road s. at least 1/2 mile from all improved roads</p> <p>2. A few primitive facilities such as trails & signs</p> <p><u>Trail Through Time</u></p> <p>1. On or near primary highways</p> <p>2. Moderate # of facilities to manage use</p> <p><u>McDonald Creek, Wildhorse & Rabbits Ear Mesas</u></p> <p>1. At least a 1/2 mile from all roads</p> <p>2. Very few to no facilities</p>	<p>1. Removal of unnecessary and/or redundant signs</p> <p>2. Closure and rehabilitation of unauthorized travel routes</p>	<p>Inventory of location of all roads, trails and facilities in relation to the recreation management zone</p> <p>Annually</p>
<p><u>Social Setting:</u> Human Use and Occupancy</p>	<p>Contacts with other people --Number of encounters per day with other groups</p>	<p><u>Mary's & Lion's Loop</u> <u>Rabbit Valley Riding Area</u></p> <p>85% chance of encountering no more than 15 other groups per day in "Middle Country" zone</p> <p><u>Trail Through Time</u></p> <p>85% chance of encountering no more than 20 other groups per day in the "Rural" zone</p> <p><u>McDonald Creek, Wildhorse & Rabbits Ear Mesas</u></p> <p>85% chance of encountering no more than 10 other groups per day</p>	<p>1. Initiate high visibility patrols & information & education program</p> <p>2. Charge a use/entrance fee</p> <p>3. Require use permits for trail & or area (non-limiting)</p> <p>4. Restrict number of groups using the area & or trail at any one time</p>	<p>BLM and volunteer patrols on key motorized and non-motorized trails/ (minimum of 12 survey patrols per year per trail)</p>

RECREATIONAL Monitoring
Indicators, Standards and Actions for North of the River Zone (Cont.)

Value to be Maintained or Enhanced	Key Indicators	Management Standard	Management Actions if Standard(s) are not met (in preferred order of implementation)	Sampling Method/Frequency
<u>Managerial Setting:</u> Service Delivery System	Amount of on the ground visitor management	<u>Mary's & Lion's Loop</u> <u>Rabbit Valley Riding Area</u> <u>McDonald Creek, Wildhorse & Rabbits Ear Mesas</u> A few subtle visitor management controls and information facilities present <u>Trail Through Time</u> On site controls and regulations numerous and easy to see	Removal of unnecessary or redundant management controls and/or information facilities.	Inventory of number and location of visitor management controls and information facilities Annually
Activity Opportunities Preferred	Degree of preference for targeted activity opportunities	85% of visitors reporting that they still desire to participate in the targeted activities specified for this zone	To be determined and prescribed after resurvey results	Resurvey visitors every 5 years
Activity Opportunity Participation	Ability to participate in targeted activity opportunities	High degree of ability for visitors to engage in targeted activity opportunities	Evaluate information brochures to determine if they are explicitly portraying targeted activity opportunities (amend as needed)	Annual analysis based on field observations, visitor register data etc.
Benefit Opportunities Preferred	Degree of preference for targeted benefit opportunities	85% of visitors reporting at least a "moderate" preference for targeted benefit opportunities	To be determined and prescribed after resurvey results	Resurvey visitors every 5 years

RECREATIONAL Monitoring Indicators, Standards and Actions for North of the River Zone (Cont.)

Value to be Maintained or Enhanced	Key Indicators	Management Standard	Management Actions if Standard(s) are not met (in preferred order of implementation)	Sampling Method/Frequency
Achievement of Benefit Opportunities	<p>Ability to realize the following, on-site psychological experiences.....</p> <p><u>Mary's & Lion's Loop</u></p> <ul style="list-style-type: none"> - Meeting desired challenges - Enjoy risk-taking canyon adventure - Enjoying strenuous physical exercise - Testing your endurance - Quickly accessing natural resource environments - Enjoying frequent exercise - Savoring river canyon aesthetics - Escaping everyday responsibilities for awhile - Releasing built up mental tensions <p><u>Rabbit Valley Riding Area</u></p> <ul style="list-style-type: none"> - Quickly accessing natural resource environments - Enjoying frequent exercise - Enjoying frequent access to a range of physical challenge - Enjoying the closeness of family and friends - Enjoying group outdoor events - Enjoying learning outdoor recreation & outdoor social skills - Escaping everyday responsibilities for awhile 	85% of responding visitors reporting being able to at least moderately able (3.0 on a probability scale with 1 = not at all able to 4 = totally able) to achieve the benefit opportunities	Management actions will be prescribed from resurvey results (resurvey will determine the setting attributes that support the achievement of benefits and establish linkages in the benefit chain of causality. Managers will use indirect and direct measures to meet standard.)	Resurvey visitors every 5 years

RECREATIONAL Monitoring Indicators, Standards and Actions for North of the River Zone (Cont.)

Value to be Maintained or Enhanced	Key Indicators	Management Standard	Management Actions if Standard(s) are not met (in preferred order of implementation)	Sampling Method/Frequency
Achievement of Benefit Opportunities	<p>Ability to realize the following, on-site psychological experiences.....</p> <p><u>Trail Through Time</u></p> <ul style="list-style-type: none"> - Enjoying meeting new people having similar interests - Enjoying directed experiential learning about dinosaur ecology and area geology - Enjoying viewing/examining dinosaur fossils on your own in their natural setting <p><u>McDonald Creek, Wildhorse & Rabbits Ear Mesas</u></p> <ul style="list-style-type: none"> - Quickly accessing natural resource environments - Enjoying frequent exercise - Enjoying closeness of family & friends - Discovering and contemplating man's relationship with the land - Enjoying exploration - Enjoying learning about earlier cultures - Enjoying canyon, river and rock art aesthetics - Savoring area canyon country aesthetics - Escaping everyday responsibilities for a while 	85% of responding visitors reporting being able to at least moderately able (3.0 on a probability scale with 1 = not at all able to 4 = totally able) to achieve the benefit opportunities	<p>Management actions will be prescribed from resurvey results (resurvey will determine the setting attributes that support the achievement of benefits and establish linkages in the benefit chain of causality. Managers will use indirect and direct measures to meet standard.)</p> <p>If the resurvey shows that benefit opportunities are not being achieved, the setting prescriptions may be changed to a class that better reflects the targeted benefits</p>	Resurvey visitors every 5 years Conduct focus group interviews

Other monitoring activities for North of the River Zone:

1. Annually monitor high use trails and campsite areas for unacceptable resource damage.
2. Annually compile data from all trail registration stations and traffic counters.
3. Annually monitor and evaluate the application of information/marketing materials to determine if they explicitly describe the benefit opportunities.

RECREATIONAL Monitoring Indicators, Standards and Actions for Colorado River Zone

Value to be Maintained or Enhanced	Key Indicators	Management Standard	Management Actions if Standard(s) are not met (in preferred order of implementation)	Sampling Method/Frequency
<p>Physical Setting Land and Facilities</p>	<p>1. Nearness to/distance from roads 2. Amount of Developed Facilities</p>	<p>1. At least 1/2 mile from all improved roads 2. A few primitive facilities such as trails & signs but hardly noticeable</p>	<p>1. Removal of unnecessary and/or redundant signs 2. Closure and rehabilitation of unauthorized travel routes</p>	<p>Inventory of location of all roads and trails in relation to the recreation management zone Annually</p>
<p>Social Setting Human Use and Occupancy</p>	<p>Contacts with other people -- Number of encounters per day with other groups</p>	<p>85% chance of encountering no more than 15 other groups per day on the river</p>	<p>1. Initiate high visibility patrols and information and education program 2. Charge a use/entrance/launch fee 3. Limit overnight use, assigned campsites in advance, permit with a fee 4. Encourage early launch times 5. Reduce allowable party size to 25 (not including guides) 6. Limit total overnight use to 20 parties per night. 7. Limit the number of water craft per group to no more than 12 8. Require staggered launch times for all parties 9. Restrict the number of parties using the river at any one time - allocation system (only during peak use period April - October 31)</p>	<p>BLM and volunteer river patrols/ (minimum of 12 survey patrols per year)</p>
<p>Managerial Setting: Service Delivery System</p>	<p>Amount of on the ground visitor management</p>	<p>A few subtle visitor management controls and information facilities present</p>	<p>Removal of unnecessary or redundant management controls and/or information facilities.</p>	<p>Inventory of number and location of visitor management controls and information facilities Annually</p>

RECREATIONAL Monitoring
Indicators, Standards and Actions for Colorado River Zone (Cont.)

Value to be Maintained or Enhanced	Key Indicators	Management Standard	Management Actions if Standard(s) are not met (in preferred order of implementation)	Sampling Method/Frequency
Activity Opportunities Preferred	Degree of preference for targeted activity opportunities	85% of visitors reporting that they still desire to participate in the targeted activities specified for this zone	To be determined and prescribed after resurvey results	Resurvey visitors every 5 years
Activity Opportunity Participation	Ability to participate in targeted activity opportunities	High degree of ability for visitors to engage in targeted activity opportunities	Evaluate information brochures to determine if they are explicitly portraying targeted activity opportunities (amend as needed)	Annual analysis based on field observations, visitor register data etc.
Benefit Opportunities Preferred	Degree of preference for targeted benefit opportunities	85% of visitors reporting at least a "moderate" preference for targeted benefit opportunities	To be determined and prescribed after resurvey results	Resurvey visitors every 5 years

RECREATIONAL Monitoring
Indicators, Standards and Actions for Colorado River Zone (Cont.)

. Value to be Maintained or Enhanced	Key Indicators	Management Standard	Management Actions if Standard(s) are not met (in preferred order of implementation)	Sampling Method/Frequency
Achievement of Benefit Opportunities	Ability to realize the following, on-site psychological experiences..... -Meeting desired challenges -Enjoy risk-taking canyon adventure -Improving skills- - Enjoying the closeness of family and friends - Enjoying learning outdoor recreation & outdoor social skills - Enjoying reflecting on personal and family values - Enjoying mental & physical rest	85% of responding visitors reporting being able to at least moderately able (3.0 on a probability scale with 1 = not at all able to 4 = totally- able) to achieve the benefit opportunities	Management actions will be prescribed from resurvey results (resurvey will determine the setting attributes that support the achievement of benefits and establish linkages in the benefit chain of causality. Managers will use indirect and direct measures to meet standard.) If the resurvey shows that benefit opportunities are not being achieved, the setting prescriptions may be changed to a class that better reflects the targeted activities and the facilitation of targeted benefits	Resurvey visitors every 5 years Conduct focus group interviews
Minimal use of motorized watercraft on river	Users indicating problem	No more than 15% of nonmotorized visitors reporting that motorized use is a problem (on a scale of not a problem to a very serious problem)	<ol style="list-style-type: none"> 1. Restrict size of motors allowed on motorized watercraft 2. Allow motorized watercraft on the river only on select use periods 3. Prohibit motorized watercraft entirely during the primary float season 	Resurvey visitors every 5 years
Camping Areas	Users indicating problem Vegetation loss within campsites	85% of visitors reporting that campsites in satisfactory condition, <i>not or minor</i> problem (on a scale of not a problem to a very serious problem) No more than 25% loss of vegetation within campsites	<ol style="list-style-type: none"> 1. Close a portion of the camp areas to use to allow for natural regeneration of vegetation 2. Close entire camp area to use and rehabilitate impact areas 	Resurvey visitors every 5 years Photo-monitoring of campsites in August (already established)

RECREATIONAL Monitoring
Indicators, Standards and Actions for Colorado River Zone (Cont.)

Value to be Maintained or Enhanced	Key Indicators	Management Standard	Management Actions if Standard(s) are not met (in preferred order of implementation)	Sampling Method/Frequency
People on the river	Users indicating problem	85% of visitors reporting that the number of people on the river is acceptable, <i>not or minor</i> problem (on a scale of not a problem to a very serious problem)	<ol style="list-style-type: none"> 1. Initiate high visibility patrols and information and education program 2. Charge a use/entrance/launch fee 3. Limit overnight use, assigned campsites in advance, permit with a fee 4. Encourage early launch times 5. Reduce allowable party size to 25 (not including guides) 6. Limit total overnight use to 20 parties per night. 7. Limit the number of water craft per group to no more than 12 8. Require staggered launch times for all parties 9. Restrict the number of parties using the river at any one time - allocation system (only during peak use period April- October 31) 	Resurvey visitors every 5 years
Campfires/fire rings	Users indicating problem	85% of visitors reporting that camp fire rings are <i>not or minor</i> problem (on a scale of not a problem to a very serious problem)	<ol style="list-style-type: none"> 1. BLM will increase patrols and put --in presence to educate users and enforce regulations 2. Seasonal (summer) restrictions on campfires 3. Require visitors to bring their own firewood 4. Allow wood fires only in designated sites. Place fire rings in those areas 5. Prohibit wood fires within corridor, require the use of stoves and charcoal grills 	Resurvey visitors every 5 years
Litter and human waste	Users indicating problem	85% of visitors reporting that litter and human waste is <i>not or minor</i> problem (on a scale of not a problem to a very serious problem)	<ol style="list-style-type: none"> 1. Increase the number of clean-up patrols to every two weeks 2. Education/awareness program for the upstream communities 	Resurvey visitors every 5 years

Other monitoring activities for the Colorado River Zone

1. Annually monitor and evaluate the application of information/marketing materials to determine if they explicitly describe the benefit opportunities.

RECREATIONAL Monitoring

Indicators, Standards and Actions for South of the River Zone

Value to be Maintained or Enhanced	Key Indicators	Management Standard	Management Actions if Standard(s) are not met (in preferred order of implementation)	Sampling Method/Frequency
<p>Physical Setting Land and Facilities</p>	<p>1. Nearness to/distance from roads</p> <p>2. Amount of Developed Facilities</p>	<p><u>Southern Perimeter & Arches</u> 1. Near or on 4WD roads, but at least 1/2 mile from all improved roads</p> <p>2. A few primitive facilities such as trails & signs but hardly noticeable</p> <p><u>Pollock Canyon Complex</u> 1. At least 1/2 mile from all roads in Backcountry Setting, Near or on 4WD roads in Front Country.</p> <p>2. A few primitive facilities such as trails & signs but hardly noticeable</p> <p><u>Black Ridge Canyons West</u> 1. At least 1/2 to 3 miles from all roads</p> <p>2. A few primitive facilities such as trails and signs. Very few in "Primitive" setting</p>	<p>1. Removal of unnecessary and/or redundant signs</p> <p>2. Closure and rehabilitation of unauthorized travel routes</p>	<p>Inventory of location of all roads and trails in relation to the recreation management zone</p> <p>Annually</p>
<p>Social Setting Human Use and Occupancy</p>	<p>Contacts with other people --Number of encounters per day with other groups</p>	<p><u>Southern Perimeter & Arches</u> 85% chance of encountering no more than 10 other groups per day in & around the Arches</p> <p><u>Pollock Canyon Complex</u> 85% chance of encountering no more than 15 other groups per day in the "Backcountry" setting</p>	<p>1. Initiate high visibility patrols & information & education program</p> <p>2. Charge a use/entrance fee</p> <p>3. Require use permits for trail & or area (non-limiting)</p> <p>4. Restrict number of groups using the area & or trail at any one time</p>	<p>BLM and volunteer patrols/ (minimum of 12 survey patrols per year on key trails, Arches, Rattlesnake Canyon, Pollock Bench etc.)</p>

RECREATIONAL Monitoring
Indicators, Standards and Actions for South of the River Zone (Cont.)

Value to be Maintained or Enhanced	Key Indicators	Management Standard	Management Actions if Standard(s) are not met (in preferred order of implementation)	Sampling Method/Frequency
<u>Managerial Setting:</u> Service Delivery System	Amount of on the ground visitor management	<u>Southern Perimeter & Arches</u> Visitor management controls noticeable, but harmonize with the landscape <u>Pollock Canyon Complex</u> Visitor management controls and information facilities easily noticeable in "Front Country" setting. A few subtle controls and facilities in "Backcountry" setting. <u>Black Ridge Canyons West</u> No on site visitor management or information facilities	Removal of unnecessary or redundant management controls and/or information facilities.	Inventory of number and location of visitor management controls and information facilities Annually
Activity Opportunities Preferred	Degree of preference for targeted activity opportunities	85% of visitors reporting that they still desire to participate in the targeted activities specified for this zone	To be determined and prescribed after resurvey results	Resurvey visitors every 5 years
Activity Opportunity Participation	Ability to participate in targeted activity opportunities	High degree of ability for visitors to engage in targeted activity opportunities	Evaluate information brochures to determine if they are explicitly portraying targeted activity opportunities (amend as needed)	Annual analysis based on field observations, visitor register data etc.
Benefit Opportunities Preferred	Degree of preference for targeted benefit opportunities	85% of visitors reporting at least a "moderate" preference for targeted benefit opportunities	To be determined and prescribed after resurvey results	Resurvey visitors every 5 years

RECREATIONAL Monitoring Indicators, Standards and Actions for South of the River Zone (Cont.)

Value to be Maintained or Enhanced	Key Indicators	Management Standard	Management Actions if Standard(s) are not met (in preferred order of implementation)	Sampling Method/Frequency
Achievement of Benefit Opportunities	<p>Ability to realize the following, on-site psychological experiences.....</p> <p><u>Southern Perimeter & Arches</u></p> <ul style="list-style-type: none"> - Enjoying the closeness of family and friends - Enjoying viewing and exploring the arches - Enjoying artistic self-expression - Enjoying having a tour operator take us to the arches <p><u>Pollock Canyon Complex</u></p> <ul style="list-style-type: none"> - Enjoying frequent access to a range of physical challenge - Enjoying easy access to diverse primitive & unconfined outdoor recreation environments - Enjoying learning about man's influence on the natural world - Escaping everyday responsibilities for awhile - Releasing built-up mental tensions - Appreciating knowing others are nearby for social interaction and risk reduction. <p><u>Black Ridge Canyons West</u></p> <ul style="list-style-type: none"> - Meeting desired challenges - Enjoy risk-taking canyon adventure - Improving skills - Testing your endurance - Savoring wilderness aesthetics - Enjoying reflecting on personal and family values 	85% of responding visitors reporting being able to at least moderately able (3.0 on a probability scale with 1 = not at all able to 4 = totally able) to achieve the benefit opportunities	<p>Management actions will be prescribed from resurvey results (resurvey will determine the setting attributes that support the achievement of benefits and establish linkages in the benefit chain of causality. Managers will use indirect and direct measures to meet standard.)</p> <p>If the resurvey shows that benefit opportunities are not being achieved, the setting prescriptions may be changed to a class that better reflects the targeted benefits</p>	Resurvey visitors every 5 years Conduct focus group interviews

Other monitoring activities for South of the River Zone:

1. Visitor use will be monitored through direct, on-site observations (i.e. numbers, types of use, and biophysical impacts) and through continued interviews and resurveys.
2. A traffic counter will be maintained on the Ute Trail to assist in monitoring visitor use numbers.
3. Visitor registration stations will be maintained at the Rattlesnake Arches and Mee Canyon trailheads. A year-end monitoring report will be compiled to summarize use levels and user characteristics. Use of trail registers at Knowles and Jones Canyons Trailhead will be initiated if use warrants.
4. Periodic patrols will be conducted on the road to the Arches to assess impacts from users in designated camp areas, day use sites and parking areas.
5. Photo monitoring stations will be maintained at the Arches, Mee Cave and along trails to assess changing resource conditions.

ARCHAEOLOGIC-HISTORICAL-PALEONTOLOGICAL

Monitoring for adverse impacts to archaeological, historical and paleontological resources will be conducted by maintaining and updating a database of cultural and paleontologic resources information from all of the management zones within the RCBR Plan. The following tables outline the details of the monitoring for each of the three resources by zone. Known sites (prehistoric, historical and paleontologic) should be photo documented every one to three years in order to keep a visual as well as recorded log of any damage to these resources, caused by natural or human actions. This monitoring will be done by BLM specialists (archaeologist, geologists and paleontologist), with the assistance from other BLM staff and law enforcement personnel. Additional assistance will be obtained from the various partners that work with the BLM such as the MWC and DIS. As BLM personnel work in the area, they should be previously trained in cultural and paleontological awareness and should check for visual damage to these resources when doing other resource specialty work. Any potential damages will then be brought to the attention of the specialist.

Perceived damage to the cultural or paleontological resources will be assessed by use of the databases, previous photos, and law enforcement input, as applicable. If damage is greater than what is allowed by law, RMP standards, interim guidance for WSAs, in partnership agreements, other BLM policy, and beyond the limits of this planning effort, then alternate management actions will be studied and proposed in order to better protect prehistoric, historical and paleontological resources.

ARCHAEOLOGY AND HISTORICAL Monitoring Indicators, Standards and Action for Ruby Canyon Black Ridge Planning Area

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicator	Management Standard	Potential Management Actions if Standards Are Not Met	Methods/ Frequency/ Participants
Preserve cultural resources	Implement RMP and archaeological overview information	Observed lack of degradation to sites, features, and isolated finds especially in overhangs along the river corridor	<p>Continue to increase site data base and maintain sites free from erosion, vandalism theft, and other forms of destruction</p> <p>Meet specific RMP and other objectives involving cultural and historical resources</p>	<p>Encourage management practices to decrease non-permitted actions from:</p> <ul style="list-style-type: none"> - erosion (natural tourist, grazing practices, fire, etc.) - construction activities - potentially damaging management practices (fire control, grazing) - Map, partially collect surface sites, and test excavate damaged areas of buried cultural and historical deposits, including processing of samples for radiocarbon dates, pollen, etc. - Increase patrol in the area and advocate increased enforcement measures and penalties (especially in McDonald Creek area and important overhang and rock shelter sites along the river) 	<p>M -</p> <ul style="list-style-type: none"> a) periodically visit and maintain photo record of sites most vulnerable b) continue to educate the public on preservation c) encourage law enforcement to help watch for potential degradation d) train other BLM employees in archaeological awareness needs <p>F -</p> <ul style="list-style-type: none"> a) every 1-3 years b) on-going c) annually and inform after each reported incident d) annual reminder messages, with training every 1-3 yrs <p>P - BLM, Public</p>

PALEONTOLOGY Monitoring Indicators, Standards and Action for Ruby Canyon Black Ridge Planning Area

Value to be Maintained or Enhanced	Management Prescription	Key Indicator	Management Standard	Potential Management Actions if Standards Are Not Met	Methods/Frequency/Participants
<p>Preserve paleontological resources for appropriate scientific, educational, and recreational uses</p>	<p>Implement RMP, partnership agreements, and paleontological overview information</p>	<p>Observed lack of undesired degradation to paleo localities (some desired degradation will occur due to erosion and appropriate collecting)</p>	<p>Continue to increase locality data base and maintain localities free from vandalism, theft, some forms of erosion, and other forms of destruction</p> <p>Meet specific RMP, WSA and other objectives involving paleontological resources</p>	<p>Encourage management practices to decrease non-permitted actions from:</p> <ul style="list-style-type: none"> - some erosion (recreational, tourist, fire, some natural, etc.) - construction activities - potentially damaging management practices (fire control, etc.) - Record, partially collect surface, sample and test excavate damaged areas with surface indications of fossils - Increase patrol in the area and advocate increased enforcement measures and penalties (especially in areas of the Morrison Fm. such as the Fruita Paleontology Area and the Rabbit Valley RNA) 	<p>M -</p> <ul style="list-style-type: none"> a) periodically visit and maintain photo record of localities most vulnerable b) continue to educate the public on preservation c) encourage law enforcement to help watch for potential degradation d) train other BLM employees in paleo awareness needs <p>F -</p> <ul style="list-style-type: none"> a) every 1-3 years b) on-going c) annually and inform after each reported incident d) annual reminder messages, with training every 1-3 yrs <p>P - BLM, Partners, Public</p>

VEGETATION

The vegetative landscape goal for the Ruby Canyon planning area is the DPC description (Appendix E). It was developed by a group consisting of internal BLM personnel, grazing permittees, state wildlife officials, bighorn sheep interests, recreationists, environmentalists and other interested public as an agreed upon vegetative description of the planning area. Specific objectives relating to vegetation correspond to the DPC descriptions.

Monitoring of the DPC will occur at various levels and time frames. The baseline data for the DPC was an ESI completed in 1994. This inventory describes the landscape in terms of species composition, production and seral stage. To directly monitor the status of the DPC another inventory would have to be done. This would allow for direct comparison of the species composition and seral stages. Reinventory of the entire planning area would be expensive but reinventory on a small scale basis would be feasible and undertaken on an as needed basis. The DPC can be monitored in an indirect manner through the use of other monitoring methods. Established frequency transects within individual grazing allotments can provide data that can indirectly be correlated to the DPC. Frequency transects describe the vegetation in percent frequency which is not directly comparable to DPC but can be indirectly evaluated. Objectives from specific activity plans which relate to frequency can be evaluated against the DPC. Frequency monitoring is ongoing through the resource area monitoring plan and provides a means of monitoring the DPC in shorter time frames than the ESI. Other monitoring such as land status and wildlife browse studies can also be indirectly evaluated against the DPC.

An important aspect of monitoring is to not only monitor our progress towards attaining the DPC but to continuously evaluate whether our DPC meets the objectives of the BLM and public land users. The DPC may require modification based upon changes in land use goals or mistakes in the initial description. This phase of the monitoring should be performed jointly with the DPC team and other newly identified interested parties. This could include annual meetings of the DPC team and/or public surveys.

VEGETATION Monitoring Indicators, Standards and Action for North of River Zone

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicator	Management Standard	Potential Management Actions if Standards Are Not Met	Methods/Frequency/ Participants
Diversity among and within plant communities Minimize levels of cheatgrass	Attain DPC	Plant Diversity Serial Stages	Maintain 60 - 85% of the acreage in each ecological site in DPC limits Meet specific objectives from activity plans	Encourage management practices to decrease abundance of cheatgrass and increase perennial vegetation -Reseed areas following fire -Rehab disturbed areas (such as unplanned trails, parking areas, campsites, etc.) -Improve Grazing Strategies -Utilize seed mixtures that compliment DPC when possible Utilize fire (prescribed or natural ignition) in identified areas	M - a) Photo Points b) Frequency Transects c) ESI d) Land Status F - a & b: Varies, Identified in Range Monitoring Plan c & d: 10 years P - BLM, Permittee, DPC Team, Interested Public
Sustain/Increase AUMs for live-stock use	Attain DPC	Rangeland Condition & Trend	Manage for stable or upward trend; trend would be based upon site specific objectives	Utilize grazing strategies that plan for dormant season use and/or periodic rest from spring use Improve livestock distribution Utilize fire (natural or prescribed) in identified areas	M - Photo Points - Frequency Transects F - Varies: Identified in Range Monitoring Plan P - BLM, Permittee, Interested Public continued:
Antelope Habitat	Attain DPC	Shrub Community	Restore and maintain shrub community in areas identified in DPC; north of Interstate and south of M.8 Road similar to that north of M.8 Road	Reseed disturbed areas with seed mixtures that include native shrubs and forbs	M - Photo Points - Frequency Transects - Browse/Age-Class Transects F - Identified in Range Monitoring Plan P - BLM, DOW, Permittee, Interested Public
Aesthetically pleasing environment	Attain DPC	Presence of above Indicators	Maintain the above standards	All of the above	M - Visitor survey F - Every 5 years P - Visitors and Interested Public
Viable populations of T&E plant species	Attain DPC	Presence of T&E plant species	Maintain or enhance current populations of T&E plant species	Discontinuance or adjustments of uses influencing presence of specified plants	M - Plant Status Inventory F - Every 5 years P - BLM staff, F&WS, Interested Public

VEGETATION Monitoring Indicators, Standards and Action for Colorado River Zone

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicator	Management Standard	Potential Management Activities	Methods/Frequency/Participants
Diverse Riparian Communities	Attain DPC	Presence of different plant community types	Maintain the mosaic and diversity of plant community types	Management actions applied will depend upon and be keyed to the determination of the activity influencing the standard. Refer to Chapter 5 for specific management actions in relation to influences (activity)	M - Level II Inventory - Riparian Transects F - 10 Years P - BLM, DPC Team, Interested Public
Native Plant Communities	Attain DPC	Dominance by exotic species or noxious weeds	Reduce the areas (SWA's) dominated by exotic species and/or noxious weeds	Same as above	Same as above
Cottonwood galleries	Attain DPC	Presence of mature and young cottonwoods	Maintain the number of areas (SWA's) containing mature cottonwoods or cottonwood regeneration	Same as above	Same as above continued:
Aesthetic enjoyment of riparian areas	Attain DPC	Presence of above indicators	Maintain the above standards	Same as above	M - User survey F - Every 5 years P - Users and Interested Public
Habitat for T&E species	Attain DPC	Trend of population levels of T&E species	Maintain habitat for T&E species	Limit uses or influences affecting the habitat of T&E species	M - Plant status inventory F - Every 5 years P - BLM staff, F&WS, Interested Public

VEGETATION Monitoring Indicators, Standards and Action for South of River Zone

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicator	Management Standard	Potential Management Actions if Standard is Not Met	Methods/Frequency/Participants
Diversity among and within plant communities Native Plant Communities	Attain DPC	Plant Diversity Serial Stages Annual vegetation	Maintain 60 - 85% of the acreage in each ecological site in DPC limits Meet specific objectives from activity plans Reduce levels of annual vegetation, particularly cheatgrass	Allow fire to play as natural role as possible Utilize prescribed burns to achieve diversity Reseed certain areas following disturbances such as fire to promote DPC Improve Grazing Strategies to favor perennial vegetation	M - a) Photo Points b) Frequency Transects c) ESI d) Land Status F - a & b: Varies, Identified in Range Monitoring Plan c & d: 10 years P - BLM, Permittee, DPC Team, Interested Public
Sustain/Increase AUM's for livestock use	Attain DPC	Rangeland Condition & Trend	Manage for stable or upward trend; trend would be based upon site specific objectives	Utilize grazing strategies that plan for dormant season use and/or periodic rest from spring use Improve livestock distribution Utilize fire (natural or prescribed) to achieve DPC and/or objectives	M - Photo Points - Frequency Transects F - Varies: Identified in Range Monitoring Plan P - BLM, Permittee, Interested Public
Deer Habitat	Attain DPC	Shrub Community	Maintain shrub community in critical winter range (SWA-60) and as identified in DPC for other areas	Utilize fire management which encourages diversity and the shrub component Reseed disturbed areas with seed mixtures that include native shrubs and forbs Utilize management actions that broaden critical winter range	M - Photo Points - Frequency Transects - Browse/Age-Class Transect F - Identified in Range Monitoring Plan P - BLM, DOW, Permittee, Interested Public
Bighorn Sheep Habitat	Attain DPC	Juniper canopy cover	Maintain open atmosphere in the Foothill Juniper Ecological Site	Utilize fire to open areas for sheep migration	M - Aerial photos F - 15 years P - BLM, DOW

VEGETATION Monitoring
Indicators, Standards and Action for South of River Zone (Continued)

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicator	Management Standard	Potential Management Actions if Standards Are Not Met	Methods/Frequency/Participants
Natural environment	Attain DPC	Presence of a bove indicators	Maintain the above standards	All of the above	M - Visitor survey F - Every 5 years P - Visitors and Interested Public
Viable populations of T&E plant species	Attain DPC	Presence of T & E plant species	Maintain or enhance current populations of T&E plant species	Discontiniance or adjustments of uses influencing presence of specified plants	M - Plant Status Inventory F - Every 5 years P - BLM staff, F&WS, Interested Publis

SOIL, WATER AND AIR

Many of the soil and water objectives are associated with water quality and erosion which are directly influenced by recreation, livestock and wildlife management activities. Any activity that results in an increase in vegetative cover will benefit the water cycle, improve water quality and reduce erosion. As such, monitoring to assure DPC, fire management, recreation, forage, and habitat objectives are met, will provide much of the data needed to assure water and soil resources are not compromised. Of particular interest are the vegetative composition, bare ground and litter component correlated with acceptable limits of soil loss and water quality standards. These data should be analyzed on a five year cycle by a watershed specialist or hydrologist. If the management objectives are not being met as indicated by the monitoring data, the objectives will be revisited to determine they are realistic, and the management for the area will be assessed to determine the source of the undesirable impacts.

A. North of the Colorado River

Continue monitoring as outlined in the Grand Valley Watershed Management Plan.

B. Colorado River

Photographs will be taken at permanent photo points and at a set frequency to determine changes in vegetative communities and recreational impacts to the riparian zones.

C. South of the Colorado River

Collection and interpretation of cover and vegetation data which will be used as an indicator of watershed health.

Soil and Water Monitoring Indicators, Standards and Action for North and South of the River Zone

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicators	Management Standards	Potential Management Actions of Standards Are Not Met	Methods/Frequency/Participants
Functioning watersheds	<p>Manage for desired plant community objectives</p> <p>Maintain or improve vegetative cover</p> <p>Implement management practices that minimize surface disturbance</p>	<ul style="list-style-type: none"> - Bare ground - Lack of desirable vegetation - Formation of rills - Little litter present - Pedestalling evident 	Minimal rill formation on areas capable of supporting vegetation, minimal pedestalling, good litter accumulation	<p>Wildlife and livestock grazing strategies that enhance vegetative cover</p> <p>Management practices that reduce the effects of surface disturbance; some examples include:</p> <ul style="list-style-type: none"> -rehabilitation of disturbed areas -reseeding following fire -controlling the size of fires -implementation of Best Management Practices -maintenance of sediment control structures -controlling intensity and timing of activities 	<p>Frequency data interpreted for bare ground Photo plot interpretation; transect data with a bare ground, litter component; repeat ESI</p> <p>Frequency- 5 years</p> <p>Data collected by range and management specialists or technicians and analyzed by watershed specialists or hydrologist continued</p>
Protection and/or enhancement of water quality	<p>Manage for desired plant community objectives</p> <p>Maintain or improve vegetative cover</p> <p>Implement management practices that minimize surface disturbance</p>	Stream water quality	Compliance with the Clean Water Act and/or the Colorado River Basin Salinity Control Act	Same as above	Annual analysis of water quality data collected by USGS BOR and other agencies, with supplemental data collected by the hydrologist; data should be analyzed by the hydrologist every 5 years

Soil and Water Monitoring Indicators, Standards and Action for River Corridor

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicator	Management Standard	Potential Management Actions if Standards Are Not Met	Methods/Frequency/Participants
Stable stream banks	Maintain or enhance desirable riparian vegetation along banks and in the floodplain	Presence of diverse, abundant riparian vegetation Minimal presence of exotic species or noxious weeds	Streambanks protected with native riparian vegetation Maintenance of a good mosaic of diverse, desirable plant communities	Minimize recreation impacts to the riparian vegetation Encourage management practices which create and maintain diverse native vegetative communities Utilize and/or restrict fire to maintain a mosaic of ecological/successional vegetative types	Follow-up riparian inventories; permanent photo plots Frequency every 3 years Data collection and analysis by a riparian coordinator, hydrologist, or rangeland specialist
Functioning floodplain	Maintain or enhance desirable riparian vegetation along banks and in the floodplain	Minimal damage to floodplains following high flow periods	Streambanks and floodplains protected with native riparian vegetation	Same as above	Same as above

WILDLIFE AND THREATENED AND ENDANGERED SPECIES

Achievement of the management objectives, is the primary concern of land managers, yet it is often easier to monitor the conditions thought necessary to get those objectives, the management prescriptions. However, when the prescriptions are known to have been achieved, land managers may be fooled by it into the unnecessary conclusion that the objectives have been met. Therefore, the monitoring of wildlife and T&E species targets a mix of prescriptions and objectives. In the process it might be discovered that some objectives are obtained in spite of what we do.

Several measures to monitor other resources also help assess the meeting of wildlife and T&E species objectives. With a couple of lines added to recreation's public questionnaire, wildlife and T&E species objectives are sampled. Every objective under the vegetation section and the soil, air, and water section is an objective for wildlife and, to a lesser extent, the rare plants of the Ruby Plan area. Therefore, the monitoring methods in other sections, that most directly survey the listed wildlife and T&E species objectives, are referenced in this section. Also in the vegetation section specific references are made to wildlife habitat objectives.

Due to the variety of conditions needed for healthy wildlife populations and security for rare species, and for the human enjoyment of them, many skills are required to monitor these resources. In addition to the Area Manager, the following have monitoring duties in this section: CDOW, USF&WS, and of BLM--the wildlife biologist, natural resource specialist for rare plants, recreation specialist, ecologist, and the engineering technician.

Note that the North of the River Zone overlaps with the area of the Grand Valley Habitat Management Plan. The issues, objectives, and the monitoring relevant to this overlap have been carried across to this plan.

**Wildlife and T & E Species Monitoring
Indicators, Standards and Action for North of the River Zone**

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicator	Management Standard	Potential Management Actions if Standards Are Not Met	Participants/ Methods/ Frequency/
Enjoyment of wildlife	Noted success in visitor education	News stories and awards	One every 5 years	Contract an I&E consultant to assess our products and advise	Area Manager, Recreation and Wildlife Specialists/continual observation
	Information policy Respectful of wildlife	Information and education item	No caution notes without positive notes	Brochure and improved signs	Area Manager, Wildlife Biologist/continual observation
	Improved visitor knowledge	Visitor answers	Detectable, statistically significant change	Contract an I&E consultant to assess our techniques and make and perhaps implement recommendations	Area Manager, Recreation Specialist/Resurvey of visitors every 3 year
	Large and accessible database	BLM response time	Average less than 10 minutes/ inventory type information request	Investigate time bottlenecks and attempt to break them	Wildlife Biologist/continual observation
Measurable harvests of small game		Hunter report	At least one hunter per year reporting in area	Analyze causes with CDOW of few hunters or low report rate	a. Recreation Specialist/ sign in sheet/continual b. CDOW annual hunters' report
	Reliable and strategic water sites	Permanent water	No guzzler ever dry from drought	Increase apron or storage size on guzzlers	Engineering Technician/Maintenance inspection every 5 years
More than 75 birding recreation birding days per year		Field trips	One organized field trip per year	Expand advertising	Wildlife Biologist/continual observation
Native wildlife and rare plant population security	(Same as for Diversity under Vegetation Monitoring)				
	(Same as for Habitat under Vegetation Monitoring)				
	Disturbance to rare spp. minimized	Number of plants--3 rare species	No reduction not explainable by the weather	Change trails to reduce access, explore seed harvesting and planting	Ecologist, Wildlife Biologist/ trend plot every five 5 years

Wildlife and T & E Species Monitoring
Indicators, Standards and Action for North of the River Zone (Continued)

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicator	Management Standard	Potential Management Actions if Standards Are Not Met	Participants/ Methods/ Frequency/
Protection for T&E species		Peregrine fledglings	Average number/nest site equals at least 1.7	Increase monitoring to determine causes of poor performance	CDOW eyrie watch/annual
	Maintained habitat for locally extinct species	Prairie dog dens	Active dens remain healthy or fluctuate with the Grand Valley population	Investigate causes, close trails that appear responsible	USF&WS den count every 5 years

Wildlife and T & E Species Monitoring Indicators, Standards and Action for the Colorado River Zone

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicator	Management Standard	Potential Management Actions if Standards Are Not Met	Methods/Frequency/Participants
Enjoyment of wildlife and fishing		Visitor response	20% indicate information on signs obtained	Analyze responses and craft new public outreach	Recreation and Wildlife Specialists/Visitor resurvey every 3 years
Enjoyment of wildlife	Noted success in visitor education	(Same as in North of the River Zone)			
	Information policy respectful of wildlife	(Same as in North of the River Zone)			
	Improved visitor knowledge	(Same as in North of the River Zone)			
	Large and accessible database	(Same as in North of the River Zone)			
Measurable harvests of small game and security for native biota	Diverse riparian communities	(Same as for Diverse Riparian and for Native Plant Communities in Vegetation Monitoring)			
Security and adequate harvest of waterfowl	Minimized disturbance of native species	Goose nesting	At least one successful nest on cliff At least two broods detectable from Loma Launch site to Utah state line in any day in May	Post the left river bank in the first three miles of Horsethief Canyon from Loma Launch site	CDO/nest watch/ 2 days per year

Wildlife and T & E Species Monitoring Indicators, Standards and Action for the Colorado River Zone

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicator	Management Standard	Potential Management Actions if Standards Are Not Met	Methods/Frequency/Participants
More than 500 fishing days per year		Fishing day	500 per year	Discuss with CDOW the limiting factor--resource, access, other	CDOW/Fishing survey/annual
Security for native species especially T&E species	Cottonwood galleries	(Same as cottonwood galleries and vegetation monitoring)			
	Minimized disturbance to rare native species	Bald eagle fledglings	At least 1 per year	Close Chow Doggone Island to camping unless this not cause	CDOW/nest watch/5 days per year
		Rare fish population	Upward trend over next 10 year period	Cooperate with FWS, pursue the side channel dredge proposal	USFWS/fish sampling/5 times per year
		Other native species especially T&E species	No disturbance on active or historical peregrine eyrie sites from March 15 to July 15, no reported adverse impacts identified to local human activity	Institute restrictions targeting identified problems such as rock climbing in designated areas only or by permit only within 1 mile of the Colorado River or permanent closure of trails where the hazard is occurring	Recreation Specialist/all climbing sites reported to Wildlife Biologist/continual

Wildlife and T & E Species Monitoring Indicators, Standards and Action for South of the River Zone

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicator	Management Standard	Potential Management Actions if Standards Are Not Met	Methods/Frequency/Participants
Enjoyment of wildlife	(same as the first 4 Inputs and Monitoring under North of the River Zone)				
Five 3/4 curl or greater rams observable in population		Big ram numbers	Progress toward 5 per year		CDOW/hunter report/annual
	(Same as for Sustain/Increase AUMs for livestock under Vegetation Monitoring)				
	(Same as for Bighorn Sheep Habitat under Vegetation Monitoring)				
	Reliable water sites near escapes	Bighorn distances from water	No area farther from water than 0.5 mile	Put in more water developments	CDOW/aerial mapping of collared sheep/2 times per year
	Viable population statistics	Bighorn population numbers and lamb/ewe ratio	50, 125, 525, and 25	If less than 50 reduce input of resources to this herd, if less than 50 but less than 125 maximize effort to increase herd, if more than 535 increase harvest to lower the population	CDOW/counting by radio telemetry/5 year
Minimized disturbance to native species	Lambing sites	80% stable	Increase hiker controls	CDOW/aerial survey/2 per year	
At least 400 deer hunter-days/year		Number of deer hunters	400 hunter days		CDOW/hunter checks and reports/year
	Deer population attractive to hunters	Buck/Doe ratio	More than 25 percent		CDOW/
At least 150 elk hunter-days per year		Elk taken	More than 150 per year		CDOW/hunter checks and reports/year
	Elk population attractive to hunters	Bull/cow ratio	More than 20 percent		CDOW/

**Wildlife T & E Species Monitoring
Indicators, Standards and Action for South of the River Zone (Continued)**

Value to be Maintained or Enhanced	Management Prescriptions	Key Indicator	Management Standard	Potential Management Actions if Standards Are Not Met	Methods/Frequency/ Participants
Security for native species	(Same as for Diversity among-within plant communities in Vegetation Monitoring)				
	Minimized disturbance to rare species	Lomatium latibbum plants	More than 100 plants present and trend not down	Reroute trails	Wildlife Biologist/trend plant/5year
	Minimized disturbance to native species	Lambing sites	80 percent stable	Increase hiker controls	CDOW/aerial survey 2 per year
	Elk population attractive to hunters	Bull/Cow ratio	More than 20 percent		CDOW/
Near pristine conditions	(Same as for Deer Habitat and Vegetation Monitoring)				
Confidence in security of T&E species		Peregrine fledglings	(Same as in North of the River Zone)		
		Rock climbing	(Same as in North of the River Zone)		

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